

## Géographie physique et Quaternaire



### John J. Clague et Paul F. Karrow, co-récipendaires de la médaille W.A. Johnston pour 1995

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Volume 49, numéro 3, 1995

URI : <https://id.erudit.org/iderudit/033058ar>

DOI : <https://doi.org/10.7202/033058ar>

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Éditeur(s)

Les Presses de l'Université de Montréal

ISSN

0705-7199 (imprimé)

1492-143X (numérique)

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Citer ce document

Bouchard, M. A., Bobrowsky, P. T., Clague, J. J., Prest, V. K. & Karrow, P. F. (1995). John J. Clague et Paul F. Karrow, co-récipendaires de la médaille W.A. Johnston pour 1995. *Géographie physique et Quaternaire*, 49(3), 329–336. <https://doi.org/10.7202/033058ar>

## JOHN J. CLAGUE ET PAUL F. KARROW, CO-RÉCIPIENDAIRES DE LA MÉDAILLE W.A. JOHNSTON POUR 1995

La médaille W.A. Johnston est la plus haute distinction accordée par l'Association canadienne pour l'étude du Quaternaire (CANQUA). Elle vise à reconnaître l'excellence en recherches sur la Quaternaire. La médaille, décernée bi-annuellement, porte le nom de William Albert Johnston (1874-1949), un chercheur canadien de haut renom dont la carrière à la Commission géologique du Canada, de 1905 à 1939, a vu la publication de nombreux travaux portant sur des sujets variés telles que l'histoire des chutes Niagara, le peuplement de l'Amérique, le Lac Agassiz et la Mer de Champlain.

La médaille W.A. Johnston est attribuée par un Comité qui reçoit les nominations faites par les membres de la CANQUA. Le Comité était composé cette année de mesdames A. Beaudoin et A. de Vernal, respectivement de l'Alberta et du Québec, ainsi que de messieurs C. Churcher, R. Miller et V. Levson, respectivement de l'Ontario, du Nouveau-Brunswick et de la Colombie-Britannique, et de moi-même. Le comité a attribué la médaille W.A. Johnston à deux co-récipiendaires, soit John J. Clague et Paul F. Karrow. La présentation de John J. Clague a été préparée par Peter T. Bobrowsky et celle de Paul F. Karrow, par V.K. Prest.

Michel A. BOUCHARD

Président

Comité de la médaille W.A. Johnston 1995

### JOHN J. CLAGUE

Dr. John J. Clague is the co-recipient of the W.A. Johnston Medal of CANQUA for 1995. A large number of international scientists provided letters of support for John; a clear indication of the respect and admiration John derives from his peers. John was born in San Diego, California and received his early training in geology at Occidental College and the University of California. Subsequently, he and his wife Alexis moved to Canada where he obtained his Ph.D., in 1973, at the University of British Columbia under the supervision of Dr. W. Mathews. His dissertation on the Late Cenozoic geology of the southern Rocky Mountain Trench remains a benchmark study in BC. Upon graduation, John accepted a Postdoctoral Fellowship with the Geological Survey of Canada in Vancouver, and a year later, started a permanent position as a Research Scientist.

Since 1974 John has established himself as the pre-eminent authority on the Quaternary Geology of western Canada. His proven specialization in stratigraphy, sedimentology, geomorphology, glaciology and natural hazards, has lately been expanded to include paleoseismology, crustal dynamics and recent climatic change. In 1986 he was appointed Adjunct Professor in the Institute for Quaternary Research and Department of Geography at Simon Fraser University. More recently, John excelled in the role of Editor-in-Chief of the *Canadian Journal of Earth Sciences* over the period 1988 to 1992 where he evaluated over 1000 manuscripts.

John Clague's healthy attitude to science, his expertise in several Quaternary subjects and exhausting work ethic, have attracted a large number of scientists who have cooperatively worked with him on a suite of interdisciplinary research projects. During the last few decades he has supervised and trained over 25 young scientists working in British Columbia. His devotion to the discipline and his high ethical standards have gained him the respect and admiration of scientists around the world. Notable indications of Clague's stature in the scientific community include the E.B. Burwell, Jr. Award from the Geological Society of America for the best monograph in engineering geology, Vice-President of CANQUA (1985-1987), organizing member of the XIIth INQUA Congress and organizing member of the 3rd International Conference on Geomorphology. John is also a Professional Geoscientist with the Professional Engineers and Geoscientists Association of British Columbia.

Dr. Clague remains one of the most prolific Quaternary scientists in North America, having published over 120 refereed papers and maps. John has been both an invited and keynote speaker at dozens of national and international institutes, surveys, departments and meetings. He is frequently asked to review manuscripts and research grants and is most active in geoscience outreach efforts by regularly speaking to the general public on earthquakes, geology and glaciations.

A gentleman and friend to many, John Clague represents that rare breed of Quaternary scientist that all try to emulate. An accomplished "birder" and avid jogger, he has always balanced professional work with his respect for nature. John has been my mentor, peer and good friend for many years and it gives me considerable pleasure to announce that the Canadian Quaternary Association acknowledges Clague's past accomplishments and his future influence by selecting him as 1995 recipient for the W.A. Johnston Medal. Congratulations indeed!

Peter T. BOBROWSKY

Vice President

Canadian Quaternary Association

## RESPONSE BY JOHN J. CLAGUE

Thank you very much for this award. The list of past W.A. Johnston Medal recipients is a stellar one, and it is a particular honour to be included with such noteworthy Quaternary scientists as Vic Prest, Aleksis Dreimanis, Jaan Terasmae, Bill Mathews, and J. Ross Mackay.

*Word that I had been chosen for the Johnston Medal prompted me to examine my own career.* As I approach my 50th birthday, I have come to realize that I will need another lifetime to accomplish all my professional goals. I suppose this is one of the dangers of being a generalist with interests in a wide variety of earth science fields — such people tend to get involved in far too many things for their own good. The generalist may be somewhat archaic in an age when knowledge is growing faster than our ability to use it, a trend that is putting strong pressure on scientists to specialize. A generalist runs the risk of being a "jack of all trades, but master of none." Nevertheless, I have always resisted becoming overly specialized, which in the extreme leads to knowing everything about nothing. In this respect, I feel that I am in good company, having followed in the footsteps of my main scientific mentors, Joe Birman, the late Clyde Wahrhaftig, and Bill Mathews. I also am blessed to have worked for the Geological Survey of Canada for the last 21 years. The GSC has given me freedom to pursue my own eclectic research interests, and has actually paid me to do this! — I have trouble imagining a better employer.

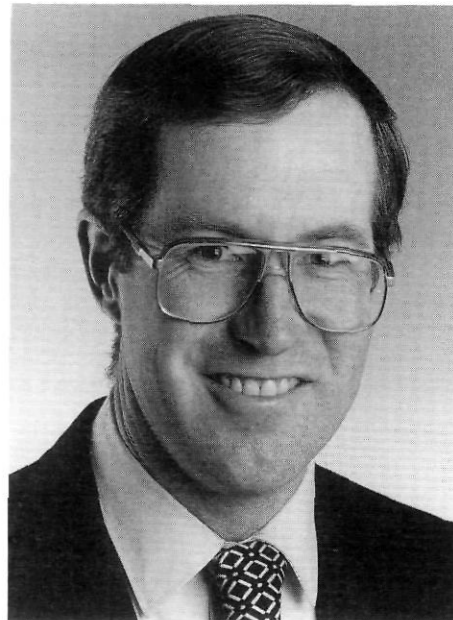
Quaternary science is the perfect field for the generalist, and I was attracted to it early in my student years. Quaternarists, more than most scientists, have a *Gaian view of the world and appreciate the complex, web-like interrelations of earth systems at all levels.* Recognizing this, and being aware of my own limitations, I have, over the years, sought out collaboration with other scientists. I have broadened my horizons and gained the greatest pleasure in working with archaeologists, biologists, physical geographers, glaciologists, geophysicists, physicists, engineering geologists, sedimentologists and others.

Another thing that attracted me to Quaternary science is the immediacy and practical importance of the recent past. We deal with a time frame that is immediate and understandable to the average person. Our domain is unconsolidated sediments that, as Bill Mathews (1992) said, "mean so much as a growing medium for mankind's food, a reservoir for his water supplies, a source of his building materials and a foundation for his structures." We also understand the natural processes that, at times, threaten people and property. In a time when science is generally under assault and when geology is viewed by some as an arcane science, we should take heart that what we do, both in the basic and applied realms, is necessary and vital. Our challenge is to convey the importance of Quaternary research to decision makers and the general public. We also must stimulate and nurture students, for it is they who will carry the torch after we're gone.

Having said this, perhaps the most important thing is to have fun in one's work. I, for one, have received enormous joy out from my research and hope to continue to do so.

My thanks to Peter Bobrowsky for nominating me for the Johnston Medal, to those who wrote supporting letters, and to CANQUA for honouring me.

John J. CLAGUE



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### PAUL FREDERICK KARROW

It is a great pleasure for me to introduce Paul Karrow, whom I have known for about forty years. Paul was born in St. Thomas, Ontario in 1930. As his father was an RCMP officer there were many moves and hence Paul attended schools in such places as Amherstburg, Sarnia and Toronto. His high school career was equally complex, beginning in Toronto and closing in the Maritimes. From his hotel window in Halifax, during World War II, Paul watched the convoys assembling in the Bedford Basin and he became very proficient in carving models of several of the ships. Later, when living in Cape Breton, Paul obtained summer employment with Dominion Steel and Coal Company. One of his jobs was sampling coal from the incoming 'hopper-cars' for later laboratory analyses. Perhaps it was this job that piqued Paul's interest in trains for he has since become a model-railroad buff. But it was while in Cape Breton that the high school principal kindled his love for geology.

He then enrolled at the University of Toronto to study the Classics. Though this was not his forte it may well account for his ability to think and write clearly and succinctly. After a return to high school for more science background he enrolled at Queen's University in Kingston, taking courses in geological engineering. He obtained his Bachelors Degree in 1954. Meanwhile Paul had begun his geological career in the early fifties as an assistant on bedrock parties in British Columbia and Manitoba, and then on a surficial geology project in Québec. It was while working with Nelson Gadd for the Geological Survey of Canada in the Trois-Rivières region that he met Dr. George White, an eminent Pleistocene geologist from the University of Illinois and thus Paul shortly became a devotee of surficial geology studies. This resulted in Paul following Nelson Gadd's lead and enrolling for postgrad work at Urbana, Illinois. The Grondines area in Québec became his thesis project. He was awarded a scholarship in his final year at Illinois and obtained his Ph.D. in 1957.

From 1957 to 1963 Paul was employed by the Ontario Department of Mines and mapped a number of areas in southwestern Ontario. After becoming a member of the Ontario Archeological Society, he became its President in 1963; this is an interest he still maintains as is evident from several publications. While doing library research at the Royal Ontario Museum he met and began a courtship with Beth McCormick, a graduate biologist. They were married in September 1962 and have since raised a family of three boys and a girl. I must mention here that the McCormick family ancestors settled in what is now southwestern Ontario in the early 1700's while the Karrow clan dates from the middle 1800's; quite a historical record! Beth and Paul's home is appropriately located in a high part of the Waterloo interlobate or kame moraine. This fine setting is further enhanced by Beth's fabulous flower gardens.

Paul left the Ontario government in 1963 and accepted a position as Assistant Professor, Department of Civil Engineering, at the University of Waterloo in 1963-65. He was appointed as an Associate Professor in the Department of Earth Sciences in 1965. In fact he was a founding member of this department. He served as Acting Chairman from 1965-67, and Chairman from 1967-70. He was promoted to the rank of Professor in 1969. These successive advancements speak well for Karrow's performance in the management field so much so that he was called on to serve as interim chairman from July to December 1992.

But during all this time Paul was advancing his geological background and publishing numerous reports, maps, and papers. Aside from governmental reports for both the Ontario and Federal surveys he has authored or co-authored various articles pertaining to the Champlain Sea, Canadian Pleistocene marine clays, the age of molluscs and the mammals of Lake Iroquois, and the geology of Niagara Falls. And, not to forget his engineering association, he was co-author of a map on the bedrock contours of metropolitan Toronto, and sole author of a series of bedrock topography map-areas in southwestern Ontario. All have proven valuable in regard to groundwater, pollution, and engineering projects.

Paul's administrative and teaching duties did not interfere with his love of field work: he worked for the Ontario Geological Survey in the summer of 1964, and for the Geological Survey of Canada from 1965-68. Hence his detailed reports on the Pleistocene geology of numerous map-areas. He has co-authored articles on many facets of the Great Lakes region including the Whirlpool valley-fill at Niagara, Spencer's Laurentian River, stratigraphic studies in the Toronto Pleistocene, and the Quaternary stratigraphy and geomorphology of the eastern Great Lakes region. He is clearly a leading authority on all facets of the history of glacial Lake Algonquin. He is also an authority on both the stratigraphy and history of the Toronto Interglacial and glacial deposits.

Paul has made great use of his sabbatical leaves from Waterloo. On two occasions he was a Visiting Scientist at Scripps Institution for Oceanography in California, and at another time was Visiting Professor at the University of South Florida. Three

co-authored papers have resulted from these sabbaticals. Paul is also known for some specific site observations in New York, Pennsylvania, and Michigan; in all cases he has worked closely with local scientists.

From the list of ten professional positions given in his bibliography it is fully evident that his wise counsel has been sought-after over many years. He is also a member of ten professional bodies, including AMQUA and CANQUA. He is also a member of the Kitchener-Waterloo Field Naturalists, Ontario Genealogical Society, and is on the Board of Directors of the Waterloo Historical Society.

Over many years Paul has collaborated with engineers on matters pertaining to bedrock stress-relief, and he is a co-author with Robert Legget on a *Handbook of Geology and Civil Engineering*. A queer mix indeed in view of his many papers in cooperation with leading experts in the fields of palynology, paleocology, botany and zoology. And add to these his many papers pertaining to borehole geophysics, isotope dendrochronology and archeology. And then there is a fine paper in the texture, mineralogy and petrography of North America tills. Assuredly Paul is a prolific writer with well over two hundred publications on a great variety of subjects. Many of his papers are published in refereed journals or other first-rate publications. And there is no sign that Paul is slacking-off in his mature years but rather the reverse.

I am delighted that CANQUA has chosen to honour Paul F. Karrow, an outstanding Quaternary scientist, for the 1995 W.A. Johnston Award.

Victor K. PREST

## RESPONSE BY PAUL F. KARROW

When I received a call from CANQUA President Bonnie Blackwell a couple of months ago notifying me I was to be awarded the Johnston Medal, it was more than a pleasant surprise. It was Monday morning and I can say it more than made my day, it made my week! I very much appreciate this honor and I will always cherish the occasion. My sincere thanks to the Johnston Medal Committee and all those who had a hand in it.

A review of the published comments for previous awardees of the Johnston Medal revealed it has been common to relate their more recent work to that of William Albert Johnston. In my own case, I lived for a few years in Sarnia, near his birthplace, and, like him, received my first university degree from Queens University in Kingston. I never worked in areas previously worked on by Johnston, but some of my students have. We certainly worked on related problems, such as the Champlain Sea and Great Lakes history. He had a long and productive career with the Geological Survey of Canada, for which I worked each summer during my University education, and indeed had every intention of joining upon completion of my Ph.D. That I did not, resulted from one of those forks in my path which one encounters from time to time.

Queens had a good reputation in geology and was relatively nearby Ottawa, where I lived. I was lucky to be hired by the GSC after first year and worked at Elbow Lake, Manitoba, with John McGlynn. Never having camped or canoed before, my main accomplishment that summer was learning how to live in the bush, cope with clouds of mosquitoes and black flies and dodge the zooming deerflies. Precambrian geology was over my head, with my very limited geology background.

After second year at Queens I thought I would like to try work in groundwater and Pleistocene geology. I was assigned to work with Nelson Gadd in the Bécancour area of Québec. This was great good fortune for me as it laid the foundation for my future specialization. We three students spent four days of the week carrying out what was then the usual form of water survey. There were no data banks of well records — we had to gather our own! The other two students did the door to door interviewing while I ran a simple hand level survey in from the road to the well and lowered a weighted line to get the water level in the well. It was rather monotonous and led me to conclude I didn't want to pursue groundwater geology! On the fifth day, however, the whole party went to work on the Pleistocene stratigraphy. Nels was an excellent teacher and took great pains to explain what we were doing and the story we were literally uncovering. During that summer I was introduced to G.W. White from Illinois and R.P. Goldthwait from Ohio, as well as "the boss" from Ottawa, Vic Prest.

Continuing my intentional broadening of experience, after third year I was assigned to work on a stratigraphy party in central B.C. with Howard Tipper. He was an associate of Jack Armstrong's and took considerable interest in glacial geology. As a result, I did my B.Sc. thesis on the Pleistocene of the Nechako Valley, then undergoing major development for the Kitimat project.

After my B.Sc. at Queens I returned as a senior assistant to work with Nels Gadd in the Trois-Rivières area, most of which I mapped. More good fortune came my way because that same summer Jaan Terasmae was also mapping a nearby area as another senior assistant with Nels while undertaking palynological work in the area. Concurrently, Frances Wagner was carrying out extensive studies of the marine invertebrate faunas of the Champlain Sea. Like most geology students, particularly in geological engineering, I did not enjoy my undergraduate paleontology course (all that memorizing and drawing pictures of fossils!) but Jaan and Frances showed me the value of fossils for interpreting past environments, an influence that stayed with me and became a major interest in later years.



Although I had my B.Sc. from Queens, by not going into the traditional hard-rock geology I was a bit of an odd-ball! All the other four in my class did so. There must have been change in the wind, however, as all nine in the following year went into petroleum geology!

Anyway, off I went to Illinois, where I was supervised by George White, and in a sense learned how the other half of the geological world (the non hard-rock half) lived. My horizons were greatly broadened at Illinois and I was trained in glacial and engineering geology. My thesis work was supported by the GSC in Québec next to areas mapped by Nels Gadd. Vic Prest was a key player in these arrangements.

Still wanting to broaden my field experience in bedrock geology, I enquired at the Ontario Department of Mines about temporary work before settling in for a career in Pleistocene geology at the GSC. In the last spring at Illinois I was offered permanent employment at ODM responsible for the Paleozoic and Pleistocene geology of Ontario! I agonized over the decision, consulted advisors, and decided to accept it. Vic Prest was busy for a while in Ottawa spreading oil over troubled waters caused by my change of plans.

As I settled in at Toronto and the enormity of my responsibilities began to sink in, Vic and I, acting informally in our own Federal-Provincial conference, divided the Ontario pie, with ODM responsible for west of Toronto and the GSC east of Toronto. In my last year at ODM a forward planning exercise led to the conclusion that it would take 45 more years to complete the mapping of southwestern Ontario at the going rate of one sheet a year.

I began my Ontario mapping work in one of the population centres of Hamilton and Galt, initiating a mapping program based on map sheets like that of the GSC. I recall being told of the pleasure of my boss, Mac Hurst, who had hired me, at seeing the first colored Pleistocene geology map produced. ODM was a thoroughly hard-rock agency, but he had the vision to see the value of knowing more about the overburden. No doubt his foresight was encouraged by my predecessor there, Archie Watt, whose work was mainly applied to ground water, but who made important contributions along the way to the Pleistocene, and was a source of encouragement during my early years there.

As the office environment was hard-rock, I cultivated numerous outside contacts, such as people at the GSC, Highways, Hydro, Lyman Chapman at the Ontario Research Foundation, and Roy Deane at the University of Toronto, the latter in spite of a considerable wall between university and government. Roy, Walter Tovell at the Museum, and I started a Pleistocene Discussion Group, patterned on one from student days at Illinois. I also began a long and stimulating friendship with Aleksis Dreimanis at Western, which continues to this day.

After six years with the Ontario government I got rather restless to try teaching. Having acquired some experience, as I believed highly desirable for anyone teaching, I took a position at the University of Waterloo, where I still am. Further proliferation of interdisciplinary contacts, which are so much a part of Quaternary work, followed. The privilege of sabbatical leaves which I chose to take in places where I could do winter field work (two in San Diego, one in Tampa, and one in Victoria) further broadened my knowledge and wove even more threads into the fabric of Quaternary history I work on. They were also major enhancements to my ability to teach. Not only am I grateful to the numerous people I have worked with and learned from, but I have to say thanks, with all humility, for the privilege of sharing the learning experience with some of the newer people of this world, the students. It has all been a most enjoyable experience.

To end on a personal note, I am also indebted to the efforts of my wife in raising four children while Dad was often away in the field, or busy marking, or writing papers.

Thank you again everyone.

Paul KARROW

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